Electronic Version
Stylesheet Version v1.1.1

Claims

[c1] What is claimed is:

1. A plasma torch consumable assembly comprising:
a shield cup;
an electrode integrally connected to the shield cup; and
a tip integrally connected with the shield cup and the electrode to form a one-piece assembly wherein the tip is constructed to secure the one-piece assembly to a torch body.

[c2] 2. The assembly of claim 1 further comprising a swirl ring having a first side integrally connected to the electrode and a second side integrally connected to the tip.

[c3] 3. The assembly of claim 2 wherein the swirl ring is constructed of one of plastic and ceramic.

[c4] 4. The assembly of claim 2 wherein the swirl ring is constructed of a non-conductive material.

[c5] 5. T he assembly of claim 1 further comprising a shield integrally connected to an end of the shield cup.

[c6] 6. The assembly of claim 5 wherein the shield is constructed of one of copper and stainless steel.

[c7] 7. The assembly of claim 5 wherein the shield includes one of a gouge shield, drag shield, machine shield, and deflector.

[c8] 8. T he assembly of claim 1 wherein at least one of the shield cup, the electrode, and tip is reconditionable.

[c9] 9. The assembly of claim 1 wherein at least one of the shield cup, the electrode, and tip is replaceable.

[c10] 10. The assembly of claim 1 configured to be snap-fittable to a torch body of a plasma cutter.

[c11] 11. The assembly of claim 1 wherein the consumable assembly is constructed to be secured to a torch body by rotating one of the torch body and the consumable assembly relative to the other.

[c12] 12. A plasma cutter comprising:
a power source configured to condition power into a form usable by a plasma cutting process;
a torch connected to the power source and configured to effectuate the plasma cutting process;
a one-piece consumable assembly comprising:
a cap;
a tip fixedly connected to the cap and constructed to snap-fit the consumable assembly to the torch;

an electrode electrically connectable to the power source and fixedly connected to the cap; and
wherein the one-piece consumable assembly is assembled prior to being connected to the torch.

[c13] 13. The plasma cutter of claim 12, wherein the on-piece consumable assembly further comprises a swirl ring fixedly connected to the cap and positioned about the electrode.

[c14] 14. The plasma cutter of claim 12, wherein the one-piece consumable assembly further comprises a shield fixedly connected to an end of the cap.

[c15] 15. The plasma cutter of claim 14 wherein the shield includes one of a gouging shield and a drag shield.

[c16] 16. The plasma cutter of claim 14 wherein the shield is snap-fittable to the cap.

[c17] 17. A replacement plasma torch consumable kit comprising:
a shield cup;
an electrode;
a tip constructed to be attached to a torch; and
wherein at least two of the shield cup, electrode, and tip are press-fit to one another.

[c18] 18. The kit of claim 17 wherein each of the shield cup, electrode, and tip are secured to one another to form a one-piece assembly.

[c19] 19. The kit of claim 17 further comprising a shield, snap connected to the shield cup.

[c20] 20. The kit of claim 17 wherein at least one of the electrode, tip, and shield cup is reconditionable.

[c21] 21. The kit of claim 17 further comprising a swirl ring having an opening constructed to receive the electrode therein in a press-fit connection.

[c22] 22. A method of manufacturing a plasma torch consumable assembly comprising the steps of:
providing an electrode;
providing a tip; and
integrally connecting the electrode within a perimeter of the tip in a single unitary consumable structure.

[c23] 23. T he method of claim 22 further comprising the steps of providing a shield cup and integrally forming the shield cup in the single unitary consumable structure.

[c24] 24. T he method of claim 23 further comprising the steps of providing a swirl ring and integrally forming the

swirl ring in the single unitary structure.

[c25] 25. The method of claim 24 further comprising press-fitting the electrode into the swirl ring and press-fitting the swirl ring into the tip.

[c26] 26. T he method of claim 22 wherein the step of integrally connecting includes the step of molding the electrode and tip in the single unitary structure with an electrical isolator therebetween.

[c27] 27. The method of claim 26 wherein the step of integrally forming includes the step of casting the electrode and tip in the single unitary structure with an electrical isolator therebetween.